

REMARKS

In the Office Action¹, the Examiner rejected claims 1-21 under 35 U.S.C. § 103(a) as being unpatentable over Shibata et al. (U.S. Patent No. 5,371,373, hereinafter "Shibata") in view of Shimada et al. (U.S. Patent No. 5,348,902, hereinafter "Shimada") and Sohda et al. (U.S. Patent No. 5,283,440, hereinafter "Sohda"); and rejected claims 22-34 under 35 U.S.C. § 103(a) as being unpatentable over Shibata, Shimada, Sohda, and Hoshino (U.S. Patent No. 6,225,025, hereinafter "Hoshino").

Applicants respectfully traverse the rejection of claims 1-21 under 35 U.S.C. § 103(a) as being unpatentable over Shibata in view of Shimada and Sohda. To establish a *prima facie* case of obviousness, three basic criteria must be satisfied. First, the prior art reference (or references when combined) must teach or suggest all of the claim elements. See M.P.E.P. § 2143. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine references. Third, there must be a reasonable expectation of success. Moreover, the requisite teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. See *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). See M.P.E.P. § 706.02(j).

Applicants respectfully traverse the rejection of claim 1 as neither Shibata, Shimada, nor Sohda, alone or in combination, teach each and every element recited in the claim. Claim 1 recites a charged beam exposure including "Character Projection (CP) apertures having shaping holes of the charged beams having shapes of one hundred or more characters having shapes of the standard cells . . . [and] Character Projection (CP) aperture decision means for

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

conducting logic synthesis for the CP apertures.” In addition, claim 1 recites “standard cell library recording means for recording a standard cell library,” which contains information configured to design “patterns of the systems,” and also for “recording the standard cell library having first placement positions of the shaping holes on said CP apertures related to the standard cells corresponding to the shaping holes.”

The Examiner admits deficiencies in the combination of Shibata and Shimada, but contends that Sohda teaches “the use of apertures having shapes of one hundred or more characters having the shapes of the standard cells.” Office Action at page 8. To the extent the Examiner’s argument is understood, the Examiner appears to contend that “the cell projection mask 396,” taught by Sohda at column 16, lines 4-5, corresponds to the claimed “Character Projection (CP) apertures having shaping holes of the charged beams having shapes of one hundred or more characters having shapes of the standard cells.” Cell projection mask 396 of Sohda includes “a plurality of submasks 3914 each of which is composed of a square aperture 399 and a group of cell projection apertures 3910.” Sohda, col. 16, lines 5-7. Square aperture 399 is used to form “several square patterns including e.g. the bonding pad of an IC.” Sohda, col. 16, lines 8-9.

However, Sohda further discloses in Fig. 39, for example, a group of cell projection apertures 3910 including a set of 5 cell projection apertures. Col. 17, lines 3-4. Sohda also discloses that “the value of 5 for the number [of cell projection apertures] is very reasonable,” and that “the number of shots increases in proportion to [the number of cell apertures] to reduce the throughput.” Col. 17, lines 11-17.

Accordingly, to the extent that the cell projection apertures taught by Sohda correspond to the claimed “shaping holes . . . having shapes of one hundred or more characters,” the reference teaches away from a value greater than 5 cell projection apertures, in order to avoid a reduction in throughput. Therefore, the combination of Shibata, Shimada, and Sohda would, at best, result in a small number, e.g., 5, of apertures. Accordingly, no *prima facie* case of

obviousness has been established with respect to claim 1, for at least the reason that the Examiner's proposed combination of Shibata, Shimada, and Sohda fails to teach at least "Character Projection (CP) apertures having shaping holes of the charged beams having shapes of one hundred or more characters."

Furthermore, in an Amendment filed March 29, 2005, Applicants noted that the Examiner's proposed combination of Shibata and Shimada in an earlier Office Action fails to teach or suggest the claimed "standard cell library recording means . . . having first placement position of the shaping holes on said CP apertures," recited in claim 1. The Examiner has not addressed Applicants' reasoning that the applied references fail to teach at least this element, except to make general statements that Applicants' "arguments are moot in view of new grounds for rejection." Office Action at page 2.

Applicants respectfully disagree, and note that the Examiner's new rejections fail to address the claimed "standard cell library recording means," discussed in Applicants' reasoning. Specifically, the newly applied reference of Sohda is silent with respect to a "standard cell library recording means . . . having first placement position of the shaping holes on said CP apertures," as recited in claim 1. Applicants presented reasoning in the previous Amendment stating how neither Shibata nor Shimada teach or suggest the claimed "standard cell library recording means."

Accordingly, Applicants respectfully submit that claim 1 is allowable for at least the additional reason that Shibata, Shimada, and Sohda fail to teach or suggest the claimed "standard cell library recording means." Should the Examiner maintain the rejection after consideration of the reasoning presented herein, Applicants request a new nonfinal Office Action that addresses Applicants' previous response, thereby affording Applicants a chance to reply to a complete rejection.

Claims 7 and 15, though of different scope, recited similar limitations to claim 1, and are also allowable over Shibata, Shimada, and Sohda for reasons similar to those discussed above.

In addition, claims 2-6, 8-14, and 16-21 respectively depend from independent claims 1, 7, and 15. Claims 2-6, 8-14, and 16-21 are therefore allowable at least due to their respective dependence. Accordingly, Applicants request the Examiner reconsider and withdraw the rejection of claims 1-21.

Applicants respectfully traverse the rejection of claims 22-34 under 35 U.S.C. § 103(a) as being unpatentable over Shibata, Shimada, Sohda, and Hoshino. Claims 22-26 and 34 depend from independent claim 1, and accordingly incorporate each and every element of claim 1. As discussed above, neither Shibata, Shimada, nor Sohda, teach at least “Character Projection (CP) apertures having shaping holes of the charged beams having shapes of one hundred or more characters,” as recited in claim 1, and required by claims 22-26 and 34. Hoshino is drawn to “the creation and representation of exposure data used in an electron-beam exposure system,” (col. 1, lines 10-11) but is silent with respect to the claimed “shaping holes . . . having shapes of one hundred or more characters.” Thus Hoshino necessarily fails to overcome the above-described deficiency of Shibata, Shimada, and Sohda. Furthermore, Hoshino fails to disclose a “standard cell library recording means,” and thus also fails to cure this additional deficiency of Shibata, Shimada, and Sohda. Therefore, the recitation of Hoshino, in addition to Shibata, Shimada, and Sohda fails to establish a *prima facie* case of obviousness with respect to claim 1 and dependent claims 22-26 and 34.

Claims 7 and 15 recite similar limitations to claim 1, and are allowable over Shibata, Shimada, Sohda, and Hoshino for similar reasons to the above discussed. Claims 27-29 and 30-33 respectively depend from claims 7 and 15, and are therefore allowable over Shibata, Shimada, Sohda, and Hoshino at least due to their respective dependence. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 22-34 under 35 U.S.C. § 103(a).

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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